Canadian Journal of
PUBLIC HEALTH

VOLUME 39 TORONTO, OCTOBER 1948 NUMBER 10

An Outbreak of Paratyphoid Fever in Edmonton, Alta.

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SIX cases of paratyphoid B occurred in Edmonton from May 29 to June 9, 1948. All were women, and all had attended a certain wedding reception on May 22 last, at which 44 guests were present.

None of the eighteen men at the reception developed the infection. One experienced observer (a physician) suggested that the males at a wedding reception are more partial to the liquid rather than solid refreshments served at these functions. Perhaps a more tenable explanation is that most of the men at the reception in question had been in the armed forces, and presumably had retained some degree of immunity from previous immunization.

The first three cases were reported to the Health Department on June 10, and as the wedding reception was known to be an incident common to all of them, enquiry was directed accordingly. It was found that all food for the party, except the wedding cake, had been prepared by Mrs. D., a caterer, and one helper. Samples of stool and urine were obtained from these persons on June 11, and on June 14 our Provincial Laboratory reported that Mrs. D. herself was a carrier of *S. paratyphi B*. We were obviously fortunate in obtaining a positive result from the first stool taken. It permitted us to restrain Mrs. D., without debate, from catering to several large receptions for which she had contracted during that week.

A chicken salad, made of chopped vegetables and chicken, dressing and seasoning, was eaten by all the guests except one gentleman who had gastric ulcers. This salad appeared to be the most likely vehicle for transmission of the infection. It was prepared by Mrs. D. herself on the afternoon of the day previous to the reception, and was kept under adequate refrigeration until required.

That six only of 43 guests eating the salad developed clinical paratyphoid may be explained by varying immunity amongst the participants, and an uneven distribution of the infecting organism in the salad.

The salad was stored in a single large container, and had optimum incubating conditions not been restricted by refrigeration to a brief period, it is reasonable to assume that all susceptible persons would have developed clinical disease.

The only other refreshments served besides coffee were wedding cake, baked by a city bakery, and rolls, small cakes and cream puffs. These latter foods, however, were not consumed by all the six ladies developing the infection.

Mrs. D. denied ever having an illness which might have been interpreted as an attack of paratyphoid. The lack of any previous case attributable to her, together with her obvious opportunities for spreading such infection widely, led us to feel that she might have acquired the organism recently. However, Mrs. M. O., who developed para. B on December 23, 1947, upon hearing of the present outbreak, telephoned to say she had been at a wedding reception at the house of Mrs. D. 17 days before becoming ill. She had forgotten this at the time we investigated her illness.

Further review disclosed that Mrs. C., who developed para. B in July, 1947, was at the time of her illness visiting a sister who occupied a basement suite in the house of Mrs. D., the caterer. Apparently there was no evidence directing suspicion toward Mrs. D. at that time.

Mrs. D., upon repeated questioning, recalled a suggestive illness of her daughter, Mrs. P., which developed while the latter was visiting with the mother in 1941. Search of hospital records proved this to have been a paratyphoid B which the hospital had failed to report to the Health Department at that time.

It became evident that Mrs. D. has probably been a para. B carrier for some considerable time. She has, since the recent outbreak, had her gall bladder removed. The organ was distorted by extensive adhesions and contained gravel despite the fact that she disclaimed any attack of illness corresponding with the condition noted. Unfortunately the gall bladder was placed in formalin by mistake, and could not be cultured. Paratyphoid B was recovered, however, from bile-duct drainage. At the present writing she is not yet free from the organism.

The following résumé of case histories was made available through kindness of the attending physicians:

Mrs. G.: Age 49. Became ill May 29, 7 days following reception. Headache, nausea, vomiting, weakness and general malaise, all becoming increasingly worse until adm. to hosp. on June 7. Diarrhoea for only one day—June 5. Not constipated. Aching pain in jaws and left chest. Slight tenderness rt. upper abdomen. Liver and spleen not palpable. Several rose spots on abdomen noted June 9. Temp. 104, pulse 100, W.B.C. 6300, Sed. R. 30 m.m. Widal June 9 pos. for S. para. B 1/50. June 13 Widal pos. para. B 1/200. June 14 blood culture pos. for para. B. June 22 stool culture pos. para. B. Several previous stools and urine negative. Recovery. Stools still pos. para. B.

Mrs. M.: Age 59. Became ill May 30, 8 days following reception. Increasing fever, general malaise, nausea and vomiting, followed in 3 days by abdominal crampy pains and numerous watery greenish stools. Temp. 104.3, P. 108, physical exam. negative. June 4 Widal neg. for para. B—not repeated. W.B.C. 6200. June 7 blood culture pos. para. B. June 8 stool culture pos. para. B. Sed. rate 21 m.m. in 1 hr. June 26 urine culture pos. para. B. Recovery. Stools still pos. para. B.

Mrs. B.: Age 60. Became ill May 30, 8 days following reception. Nausea, vomiting, abdominal cramps, frequent watery stools with some mucus. General malaise marked. Low persistent backache radiating up spine to head, headache, earache, aching joints in limbs. Temp. 102, P. 100, W.B.C. 9850. Sed. rate 20 m.m. in 1 hr. Abdomen distended. Liver not palpable, spleen palpable. Rose spots noted. June 5 para. B isolated from stool. Urine showed trace of alb. June 11 Widal para. B pos. 1/800. June 13, 14—severe haemorrhages from bowel requiring two 1000 c.c. blood transfusions. June 28 Widal para. B pos. 1/12800. Recovery. Stools still pos. para. B.

Miss W.: Age 21. Became ill June 1, 10 days following reception. Fatigue, dizziness, chills, fever, loss of appetite, malaise followed by dull headache and aching of thighs, lower back, hands and neck. Constipated. Temp. 103.6, P. 110, W.B.C. 7000. Urine showed trace alb. and a few R.B.C. Sed. rate 9 m.m. in 1 hr. Spleen not palpable. A few rose spots noted on abdomen. June 11 Widal pos. para. B 1/800. June 12 stool neg. for para. B. June 12 and 17—marked haemorrhages from bowel requiring repeated blood transfusions. June 24 para. B isolated from stool. June 28 Widal pos. para. B 1/3200. Recovery. Stools still pos. para. B.

Mrs. H.: Age 21. This was the bride and guest of honor at the reception. A kindly Providence permitted her to complete her honeymoon during her longer incubation period. She became ill June 5, 14 days following the reception, with an insidious onset. Tiredness, vague aches in muscles of legs—walking became painful—finally too tired to carry on and went to bed at end of a week. Temp. 101, P. 100, W.B.C. 5800. June 11 Widal for para. B neg. June 17 Widal para. B pos. 1/400 and para. B isolated from stool. June 29 stool and urine neg. for para. B. Widal pos. para. B 1/400. Patient recovered and discharged July 5 after obtaining 3 neg. stools and urine.

Mrs. O.: Age 24. Became ill June 7, 16 days following reception. Headache, aches in various parts of body with stiffness and soreness of muscles. General malaise. About third day of illness vomited on eating heavy food. Felt "dopey" and thirsty, hot and perspiring freely. Her temperature was normal on adm. to hosp. on June 14. It remained normal except for a brief rise to 99.6° on June 17. W.B.C. 8000. June 15 stool reported neg. for para. B. In view of the neg. Widal, neg. stool, normal temperature and the fact that she felt very well, her physician discharged this patient on June 19—deciding, reasonably, that he had erred in suspecting paratyphoid fever. However, *S. paratyphosus B* was isolated from samples of both stool and urine obtained the day of her discharge. She is still under supervision.

With the exception of one case in which the temperature was fairly well sustained during the acute period, and the last case in which the temperature remained practically normal during the period of observation, the fever in these cases was quite remittent. The character of the attacks varied from mild to severe. While intestinal haemorrhage is not very common in paratyphoid, two of the six cases noted had severe haemorrhage requiring repeated blood transfusions.

The last of these cases was discharged from hospital on July 18, and on that date five of the six cases were still carriers of *S. paratyphi B.* They returned to their homes after their family contacts had been immunized against this infection. They will be kept under supervision, and periodic samples of stool and urine examined to determine whether or not any become chronic carriers.

Summary

Six cases of *S. paratyphosus B* are reported, apparently all originating from a chicken salad served at a wedding reception. The caterer who prepared the food was readily identified by stool culture as a carrier of this infection. There was evidence that she had carried the infection for quite some time. Her reputation of being a very clean and sanitary operator may indicate why, in the course of an extensive catering business, previous wide dissemination of the infection was avoided. Incubation period of cases varied from 7 to 16 days, and the attacks from mild to severe. Two cases had severe intestinal haemorrhage. A negative Widal, negative stool, lack of fever and other helpful sign or symptom during the second week of illness in one case almost led to a missed diagnosis.

Nutritional Aspects of the Hartman Jones Memorial School Health Study

II. REPORT AFTER TWO YEARS

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IN the spring of 1946 a cooperative health project was begun in the Hartman Jones Memorial School of East York Township. Several departments of the School of Hygiene collaborated with the Township Health Department to determine the effectiveness of efforts to improve the health of elementary school children. Before any alterations were attempted, the initial health conditions were determined, both as to the actual state of health and as to factors operating in the school and in the homes which could be expected to influence health. This initial appraisal indicated certain needs and, consequently, objectives. A report of nutrition observations was published (1). All subsequent efforts to improve nutrition have been educational. To detect any possible changes, thorough physical examinations and food intake studies were done in the springs of 1947 and 1948 and there were several intermediate investigations of particular nutrients or foods, e.g., milk.

This report deals with the nutritional aspects of the observations made during the two years of the project and summarizes information regarding 230 children for whom complete data for the three annual examinations are available. This group is appreciably smaller than the school population of about 600 because of losses due to children leaving or entering the school during any one year, or because some children could not be included in the study due to unwillingness on the part of the parents.

Reference to the first report (1) will provide details regarding initial conditions and methods of examination. The percentage incidence of principal physical defects in the total number of children examined in 1946 was: underweight 35, diseased tonsils 30, fair and poor posture 32, low hemoglobin 12, rickets 9, mild thyroid enlargement 9. On the basis of physical examination the health of 41 per cent of the children was assessed as fair or poor. Studies of food intake indicated that 30 per cent obtained only small amount of milk, 91 per cent no dependable source of vitamin D, and the consumption of sweet foods was high.

As a result of these findings, three nutrition objectives were selected as desirable: (1) increased use of milk by those children who were obtaining little, (2) increased use of vitamin D sources, and (3) decreased intake of sweet foods.

The educational procedures used can be divided roughly into two groups, those intended primarily to educate parents, and those directed at the children. While a particular procedure was used in a class-room for the

benefit of children, any possible effect could not be so restricted because of indirect influence upon parents. So far as consequences are concerned, the procedures cannot be sharply divided. For convenience the various steps taken will be listed under the two classifications.

A. *Education intended for parents*

1. The results of the initial appraisal were presented at the first meeting of the Home and School Association in the fall of 1946 and an address by a prominent pediatrician stressed the need for action.
2. The results and the three objectives were stated in a letter sent to each home.
3. Defects found at the first two examinations were reported to the parents through the family physician or by the school nurse.
4. For the 1948 examination either the mother or father was present.
5. Observations up to the middle of the 1947-8 season were reported at a meeting of the Home and School Association in December, 1947.
6. Nutrition classes were held for mothers in the winter of 1946-7.
7. A consulting nutrition service to provide free advice for mothers was offered.
8. Nutrition pamphlets were mailed to each home.
9. In the fall of 1946 considerable publicity was given to the project in newspapers and in a radio program, selected as one to which a majority of women in the district listen.

B. *Education intended for children*

In this case reliance was placed on class-room instruction by the school staff. Several conferences were held with teachers at which findings and objectives were discussed. The following procedures were used:—

1. Considerable basic information on mimeographed sheets was furnished to teachers.
2. A poster contest on the need for vitamin D was sponsored by the Home and School Association and the best posters were on display subsequently in the school.
3. Class-room animal experiments to demonstrate the value of milk were carried out in senior grades.
4. Posters were supplied to each class-room.
5. Several motion picture films were used.

Comparisons of observations made in 1946, 1947, and 1948

All figures are percentages of the group of 230 children for whom complete, consecutive data are available.

1. General State of Health as Assessed by Physical Examination

	1946	*1947*	*1948*
Satisfactory	58	69	60
Unsatisfactory	42	31	40

2. State of Nutrition as Assessed by Physical Examination

	1946	*1947*	*1948*
Satisfactory	57	70	76
Unsatisfactory	43	30	24

3. INCIDENCE OF PRINCIPAL DEFECTS

	1946	1947	1948
Poor posture	9	8	14
Underweight	26	20	23
Diseased tonsils	18	18	12
Low hemoglobin	14	0.5	0.5
Rickets	12	6	18
Enlarged thyroid	10	8	11

4. INCIDENCE OF UNSATISFACTORY SUPPLIES OF FOOD

Food or Meal	1946	1947	1948
Milk	16	16	22
Citrus fruit	27	26	22
Other fruit	33	24	21
Meat	23	16	19
Cheese	72	74	83
Eggs	16	10	16
Sweet foods	46	37	51
Breakfast	64	59	65
Lunch	55	49	50
Vitamin D	89	—	64

It should be noted that the physical examinations of 1946 and 1947 were conducted by the same physician while this was not the case for 1948. Food intakes were studied by the same staff member in the first two years but by a different member in 1948. While every effort was made to have observations as comparable as possible, there may be an appreciable subjective error. For example, the incidence of poor posture may largely depend upon the judgment of the person conducting the examination.

The Wetzel grid has been used in conjunction with all three examinations. In a previous report (2) comparisons between grid interpretations and clinical assessments have been given. Similar comparisons have been made for the 1948 examinations. In 1946 there was agreement between grid readings of physical status and clinical assessments for 49 per cent of the children; the agreement was true for 53 per cent in 1948. In the case of nutrition status the two procedures gave similar assessment for 39 per cent of the subjects in 1946 and 47 per cent in 1948. Clinical inspection indicated that 88 children showed a change in physical condition between the spring of 1946 and that of 1948. Of this group, the grid showed a similar change for 28 children (32 per cent of group). In this group of 88 cases, medical examination showed that 37 had regressed in physical condition and 51 had improved; grid readings indicated regression for 13 and improvement for 15. The data accruing from 1948 are in complete confirmation of those reported previously in showing that there is poor agreement between assessments obtained from the Wetzel grid and those secured by thorough medical examinations.

In connection with the occurrence of enlarged thyroids it seemed advisable to determine the age and sex incidence. At each examination about 75 per cent of the enlargements occurred in girls of ages 11, 12, and 13. All but one of the persons having thyroid enlargement reported that iodized salt was used regularly. In some cases there was a family history of the condition.

At the end of the first year of the educational efforts there appeared to have been an improvement in health and in nutrition status; the improvement in health was not continued during the second year and some deterioration was observed. The same was true of the occurrence of underweight. After two years a continued improvement in nutrition status was observed and a decrease

in the number of children with diseased tonsils. With regard to food intakes the number of children having insufficient quantities of milk and cheese was increased. Improvements noted after one year for meat, eggs, and the use of sweet foods were not continued. Intakes of fruit and of vitamin D improved definitely.

The positive changes were: (1) the decrease in the incidence of diseased tonsils, (2) improvement in the consumption of fruit and of vitamin D and (3) an improvement in the apparent nutrition status, an observation which is liable to subjective error. Despite a great deal of educational effort there was a decrease in the number of children securing sufficient milk; this decrease is in agreement with over-all figures of milk sales for the Toronto area and reflects a general situation. Even in the case of the apparent improvements it is difficult to say whether an improvement resulted from education or from the operation of another factor. It might be postulated that the decrease in the occurrence of diseased tonsils resulted from tonsillectomies consequent to education; a similar conclusion might be offered that education was responsible for the improvement in the use of vitamin D. In the case of fruit, particularly citrus, the better consumption may be due largely to better availability at satisfactory prices.

In the two years of educational effort large increases in the cost of most foods took place. The price of milk rose from 11 to 18 cents per quart. The total costs of a list of foods sufficient to meet the nutritional requirements of a family of five for one week were as follows:

March, 1946	..	$ 9.70
March, 1947	..	11.32
March, 1948	..	13.44

The marked increase in food costs could be expected to have a pronounced effect on food purchases and this effect would be opposite to that anticipated from education in the case of milk and some other foods. It could be concluded that the price increase was responsible for the increase in the number of children obtaining insufficient amounts. That conclusion is not as sound as would appear at first glance. Despite rising food costs, expenditures on vitamin D, on fruits and on sweet foods (pie, cake, candy and soft drinks) were increased in the group studied. It is worth noting that approximately one-half of the children who had small supplies of milk received very generous amounts of sweet foods. The mothers of all children with small intakes of milk were carefully questioned as to the reasons. Only one mother out of 360 gave the cost of milk as the reason and the most prevalent explanation was that the child didn't like milk. Possibly the answers were not reliable but at least there was not the indignation about price increases which was anticipated. It is clear that many influences on food use operate and that customary educational measures as used in this study had less effect than adverse influences, at least with regard to such foods as milk.

In evaluating the results of the educational activities it seemed useful to determine whether there had been any effects upon pre-school children who had not been exposed to class-room teaching. This was possible because data were available for children who entered grade I each fall. In the following

summary conditions are contrasted for 1946 and 1948. All figures are for percentages of 84 children examined in 1946 and 35 seen in 1948.

		1946	*1948*
State of health	satisfactory	60	57
	unsatisfactory	40	43
Nutrition status	satisfactory	46	77
	unsatisfactory	54	23
Infected tonsils		33	23
Rickets		20	11
Intake of vitamin D	regular	21	74
	irregular	44	15
	none	35	11
Milk consumption	satisfactory	87	83
	unsatisfactory	13	17

The state of health, assessed by physical examination, of children entering school was about the same in 1948 as in 1946 but general nutrition conditions appeared to be improved, an observation which is liable to subjective error. Attention is drawn to the decreases in diseased tonsils and the signs of rickets. While milk consumption shows about the same picture as was found for in-school children, it is clear that the efforts to improve vitamin D intake used for the school students had had a pronounced effect on parents in causing them to provide vitamin D for younger children.

The evaluation of a nutrition education project designed to alter the food habits of children is difficult. It must be remembered, initially, that changes are measured in terms of food consumption, a study which in itself is liable to several errors (3). Are changes in food use due to the educational effort, to advertising, or to food availability and prices? We see no satisfactory method of answering this question at present. If the food habits of children are to be changed, two effects must be secured: there must be created in the children a desire to use adequate amounts of the recommended foods and the parents must be made willing, by direct education or by the urging of the children, to buy and to make available to the children the proper quantities of the foods in question. The measure of success is whether the children are using foods as recommended. In the present project we set forth three objectives of food use (increased use of milk, increased use of vitamin D, and decreased intake of sweet foods) and we used a customary nutrition program containing educational techniques which are commonly recommended. In general summation it may be said that one objective, that regarding vitamin D, was partially attained and the other two were not. In the particular community, and as used, the program was less successful than educators commonly believe. Since a number of procedures were tried, it is difficult to evaluate them individually, particularly on the basis of objective evidence. However, from the experience with these procedures during two years, the following opinions are offered:

1. The poster contest used to stimulate the intake of vitamin D was effective. A study made within two months showed a marked improvement which was sustained for at least one and a half years. Poster contests cannot be used frequently. The basic principle involved, that people learn from making an effort themselves, is important. It is also

clear from the study of pre-school children that the vitamin D contest had had a definite effect on the parents.

2. Nutrition classes, requested by the executive of the Home and School Association, were poorly attended and the women who did come were already interested and possessed sufficient information. Previous experience and the current one has convinced us that nutrition classes are ineffectual as a means of reaching uninterested women. A free consulting service by which a nutritionist would call at a home on request was so little utilized as to be worthless.

3. It is not possible to state whether pamphlets, letters and other literature supplied to parents were read or had any effect. A great deal of money is spent by public and private agencies in preparing and distributing literature, almost always without an effort to find out if the literature is read or whether it has an effect. It would be useful to find out how many of a group of persons who receive a pamphlet actually read it.

4. It is our opinion that the most effective way of informing parents of health conditions of their children is to have one or both parents present during the examination of the child. There is, in this way, a good opportunity for the education of the parents.

5. In attempting to improve class-room health teaching we found that the most serious difficulty was the lack of training which the teachers had received with regard to health, not only with regard to techniques but with regard to basic information.

6. It was apparent in this project that an effective approach to the mothers was supplied by the home visits of the school nurse. Among other items, it was the school nurse who drew attention to the presence of diseased tonsils; the data indicate that her approach was effective, particularly with regard to the younger children.

In evaluating this educational undertaking we feel that the data obtained so far point the way to further investigations. It would be useful to assess the efficacy of classroom teaching with regard to a few, simple objectives without attempting in any other way to produce an effect in the homes. It would be most advantageous to evaluate single procedures. Lastly, we feel that some commonly used techniques are not as valuable as is generally thought and that there is a need to develop more effective methods in health education, at least with respect to nutrition.

This study was made possible by a grant from the International Health Division of The Rockefeller Foundation. The project could not have proceeded without the generous cooperation of the Board of Education of the Township of East York, of Mr. Muir, business administrator of the Board, of the principal and teachers in the school, of the executive of the Home and School Association, of Miss Gardiner, school nurse, and of other interested persons. To all these and to two former colleagues, Dr. H. J. Leeson and Mrs. Ruth Crawford, we express our grateful thanks.

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The Standardization of Serodiagnostic Tests for Syphilis in Provincial Public Health Laboratories

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SEROLOGICAL tests are of inestimable value in the diagnosis of syphilis if the limitations of these procedures are fully recognized. The physician and the serologist must be aware that falsely positive reactions do occur and that the negative reaction *per se* does not necessarily rule out the existence of infection. It is obvious that reliable, rigidly standardized techniques must be employed if a maximum degree of usefulness on the part of the laboratory is to be realized.

The directors of the nine provincial public health laboratories, fully aware of this fact, are participating in a cooperative effort to obtain greater uniformity in the performance of serological tests and thereby to facilitate the control of syphilis in the Dominion. The program was initiated in June, 1942, when, under the auspices of the National Research Council (Associate Committee on Medical Research), a special meeting on serological tests for syphilis was held and attended by provincial and federal representatives. The value of the use of reliable standard techniques was recognized. It was recommended that a screen test be carried out on all specimens and that the ones reacting to the screen test be subjected to a diagnostic flocculation test and a complement fixation test, the procedure described by the author serologist to be used in each case with no modifications. The importance of uniformity in the interpretation and reporting of results was stressed and a detailed system outlined. Standard antigens were to be used as provided by the Laboratory of Hygiene and also complement if it could be made available. Although the recommendations of the special meeting applied to the examination of specimens from members of the Armed Forces, there was a general understanding among the provincial directors that the procedures agreed upon should apply to specimens from the civilian population as well. Shortly after the Ottawa meeting, the federal department purchased supplies of antigens which were available to the provincial laboratories until the Laboratory of Hygiene was in a position to prepare and standardize these reagents. The distribution of dehydrated guinea pig serum (complement) prepared at the Laboratory of Hygiene was started at a later date.

The provincial laboratories have participated in three serological evaluation studies, the first of which was conducted prior to the distribution of

any standardized reagents. In this way it has been possible to gain some idea of the effectiveness of the measures outlined above.

Procedures, Materials and Methods

A summary of procedures and methods is given in the following paragraphs.

Standardization of Procedures

1. Screen Tests. Eight provincial laboratories use a supersensitive screen test on all specimens examined. Of these, seven use the Kahn presumptive test and one the Kline exclusion test.

2. Diagnostic Tests. Seven laboratories perform the standard Kahn test and a complement fixation test on specimens reacting to the screening procedure. The Kolmer regular simplified complement fixation technique is employed in six of these. Two laboratories use only a single diagnostic procedure, one* the standard Kahn test, the other a modified Kolmer complement fixation test which is performed on all specimens.

3. Quantitative Test. At a more recent conference of provincial laboratory directors it was agreed that a Kahn quantitative procedure should be performed on sera showing a 3 + or 4 + reaction with the standard Kahn test. Six laboratories are providing this service at present and three perform quantitative tests on request.

Standard Reagents

The following reagents, prepared at the Laboratory of Hygiene, are available to provincial public health laboratories:

1. Kahn sensitized antigen.
2. Kahn standard antigen.
3. Antigen for the Kolmer complement fixation tests for syphilis.
4. Mazzini cholesterolized antigen and buffered saline.
5. Kline antigen.
6. Cardiolipin antigens.
7. Dehydrated guinea pig serum (complement).
8. Antisheep hemolysin.

The reagents are supplied to the central laboratory of each province, the further distribution within the province being left to the discretion of the provincial laboratory director.

Antigens. Every effort has been made to minimize variations in sensitivity from one lot of antigen to the next. In the past four years, seven lots of Kahn standard antigen have been prepared and standardized for distribution and small amounts of all but the first lot are still on hand. Comparisons of sensitivity have recently been made by performing parallel tests with the six lots of antigen on different dilutions of positive serum pools. All of the tests were carried out by one technician and two serum dilutions only were

**The director of this laboratory is making preparations to perform the Kolmer complement fixation test as well.*

examined at one time to insure accuracy of performance. The results were in close agreement and in no instance with a given serum dilution were there differences in the readings greater than one plus.

The Mazzini microscopic flocculation test is being given a trial as a screening procedure in a number of provincial laboratories in parallel with the routine screen test. The use of cardiolipin antigens in Kolmer complement fixation techniques is also under study.

Dehydrated Guinea Pig Serum (Complement). The sera of forty to sixty guinea pigs are included in each lot of dehydrated complement. The serum pool is placed in ampoules (5 cc. quantities) and dessicated from the frozen state under high vacuum, the water vapor being removed by a condenser refrigerated with dry ice in alcohol. The hemolytic activity and the fixability of each pool are checked, both in the fresh liquid state and after an ampoule of the dried material has been kept at room temperature for two weeks. Harris' pretesting method is applied to every pool, before and after dessication, to rule out the possibility of non-specific reaction with the current lot of Kolmer antigen. A determination of the residual moisture content is made on a sample of each lot by drying *in vacuo* over P_2O_5 to constant weight. Satisfactory lots are stored at 5°C. until the time of shipment.

Antisheep Hemolysin (Amboceptor). Antisheep hemolysin is preserved by mixing with an equal volume of glycerin, the mixture being stored at ordinary refrigerator temperatures.

Serological Evaluation Studies. The provincial public health laboratories have participated in serological evaluation studies on three occasions (1940, 1944 and 1947). The standard Kahn and Kolmer complement fixation tests have received particular attention since these procedures are used in the majority of the laboratories. With each of these tests the results of the participating laboratories have been evaluated on the basis of results obtained in a reference laboratory.

Large specimens of blood are taken from syphilitic and from presumably nonsyphilitic individuals. The syphilitic group consists chiefly of patients undergoing treatment but specimens from untreated patients at various stages of the disease are obtained when available. The nonsyphilitic group is made up in large part of individuals with gonorrhoea although in the most recent study a larger proportion of apparently healthy individuals was included. Each large specimen is divided immediately into a number of tubes sufficient for distribution to each of the participating laboratories and the reference laboratory. It has been customary to distribute about ten specimens a week and the study is conducted over a period of several months. Air express service is utilized for the more distant points and every effort is made to insure the arrival of each lot of specimens at all laboratories on the same day although due to the vagaries of the weather this is not always possible. Weekly reports are submitted by the participants and the findings of the reference group are made known from time to time. At the conclusion of the study, summaries of the results are prepared and distributed, each laboratory being designated by a letter of the alphabet which is known only to the director of that laboratory.

TABLE I

STANDARD KAHN TEST

Evaluation of Performance in Provincial Public Health Laboratories (1946-47)

LAB.	Individuals with diagnoses of syphilis, untreated or treated (approx. 25% seronegative)				Individuals with no clinical evidence of syphilis			
	Total sera	Per cent Positive	Per cent Doubtful	Sensitivity	Total sera	Per cent Positive	Per cent Doubtful	Specificity
A	107	60.7	15.0	68.2	87	0	2.3	98.9
R.L.	107	58.9	18.7	68.3	87	0	1.1	99.5
B	107	49.5	20.6	59.8	87	0	0	100
R.L.	107	58.9	18.7	68.3	87	0	1.1	99.5
C	107	70.1	8.4	74.3	87	0	1.1	99.5
R.L.	107	58.9	18.7	68.3	87	0	1.1	99.5
D	106	51.0	24.5	63.3	87	0	2.3	98.9
R.L.	106	58.5	18.9	68.0	87	0	1.1	99.5
F	106	62.3	13.2	68.9	87	0	0	100
R.L.	106	59.4	18.9	68.9	87	0	1.1	99.5
G	104	58.6	15.4	66.3	82	1.2	0	98.8
R.L.	104	59.6	17.3	68.3	82	0	1.2	99.4
H	102	46.1	18.6	55.4	80	0	0	100
R.L.	102	56.9	19.6	66.7	80	0	1.2	99.4
I	99	38.4	30.3	53.6	84	0	0	100
R.L.	99	57.6	19.2	67.2	84	0	1.2	99.4

R.L. = Reference Laboratory (Laboratory of Hygiene, Department of National Health and Welfare, Ottawa).

Summaries of the results of the third evaluation study are shown in Tables I and II. The laboratories are rated according to the system adopted by the United States Public Health Service (1). Sensitivity is based on the syphilitic group of donors and is expressed as the percentage of positive results plus one-half the percentage of doubtful results. Specificity, which is based on the nonsyphilitic group, is expressed as one hundred minus the sum of the percentage of positive reactions and one-half the percentage of doubtful reactions. The sensitivity level of each laboratory is calculated from those specimens reaching both it and the reference laboratory in satisfactory condition. The rating of the reference laboratory based on the same specimens is included in each case. This method of treatment seems necessary since certain laboratories received a number of specimens in an unsatisfactory condition.

The results of the first and second evaluation studies have been similarly treated and differences in sensitivity and specificity between the participating laboratories and the reference laboratory in each of the three studies are presented graphically in Figure 1[1,2].

[1]There has been an increase in the number of laboratories performing both the standard Kahn and a complement fixation test since the first evaluation study.

[2]In the first and second evaluation studies the Venereal Disease Research Laboratory, Staten Island, N.Y. (Dr. J. F. Mahoney, Director), kindly served in the capacity of a reference laboratory for both the standard Kahn and Kolmer complement fixation tests.

TABLE II

COMPLEMENT FIXATION TEST

Evaluation of Performance in Provincial Public Health Laboratories (1946-47)

LAB.	Individuals with diagnoses of syphilis, untreated or treated (approx. 25% seronegative)				Individuals with no clinical evidence of syphilis			
	Total sera	Per cent Positive	Per cent Doubtful	Sensitivity	Total sera	Per cent Positive	Per cent Doubtful	Specificity
A	106	62.3	11.3	68.0	87	0	1.1	99.5
R.L.	106	56.6	15.1	64.2	87	0	0	100
B	104	65.4	6.7	68.8	87	0	0	100
R.L.	104	56.7	15.4	64.4	87	0	0	100
C	105	68.6	8.6	72.9	86	1.2	0	98.8
R.L.	105	57.2	15.2	64.8	86	0	0	100
F	105	61.0	11.4	66.7	87	0	0	100
R.L.	105	57.1	15.3	64.8	87	0	0	100
G	106	34.9	14.2	42.0	86	0	0	100
R.L.	106	56.6	15.1	64.2	86	0	0	100
H	98	62.2	12.3	68.3	78	0	0	100
R.L.	98	56.1	14.3	63.3	78	0	0	100
I	97	66.0	7.2	69.6	84	0	1.2	99.4
R.L.	97	56.7	13.4	63.4	84	0	0	100
J	105	41.9	24.8	54.3	86	0	0	100
R.L.	105	57.1	14.3	64.3	86	0	0	100

R.L. = Reference Laboratory (Laboratory of Hygiene, Department of National Health and Welfare, Ottawa).

Twenty nonsyphilitic individuals only were included in the first serological study, nineteen of whom had a history of gonorrhoea. In the second study blood specimens were obtained from thirty-seven patients with gonorrhoea and from thirteen apparently normal individuals. The nonsyphilitic group in the third study consisted of forty-seven patients with gonorrhoea or nonspecific urethritis and forty presumably normal individuals. Approximately one hundred patients have been included in the syphilitic group in each of the three evaluation studies.

DISCUSSION

The reagents used in the serodiagnosis of syphilis as well as the actual performance of the tests must be kept under close scrutiny. Slight modifications in the procedures outlined by the author serologist may alter the sensitivity of the serological reaction. It is extremely easy over a period of time to drift towards "oversensitivity" or "undersensitivity" in the reading of the tests. The task of maintaining reagents of good quality may be burdensome, especially in the smaller laboratory. The preparation of antigens and complement at a central laboratory should be helpful and at the same time should create a greater degree of uniformity of results between laboratories.

The evaluation studies described give each participating group the opportunity to compare their performance on a given test with that of other laboratories as well as with a reference laboratory. This type of study is not intended to assess the efficiencies of the tests. The nonsyphilitic groups are particularly inadequate and the term "specificity" has been used in this connection with a certain amount of reservation. One must depend for this information upon the intensive studies of the author serologists and results obtained in such conferences as were held at Copenhagen, Montevideo, and Washington.

What constitutes a satisfactory performance on the part of a participating laboratory? Obviously, the types of patients chosen as syphilitic donors

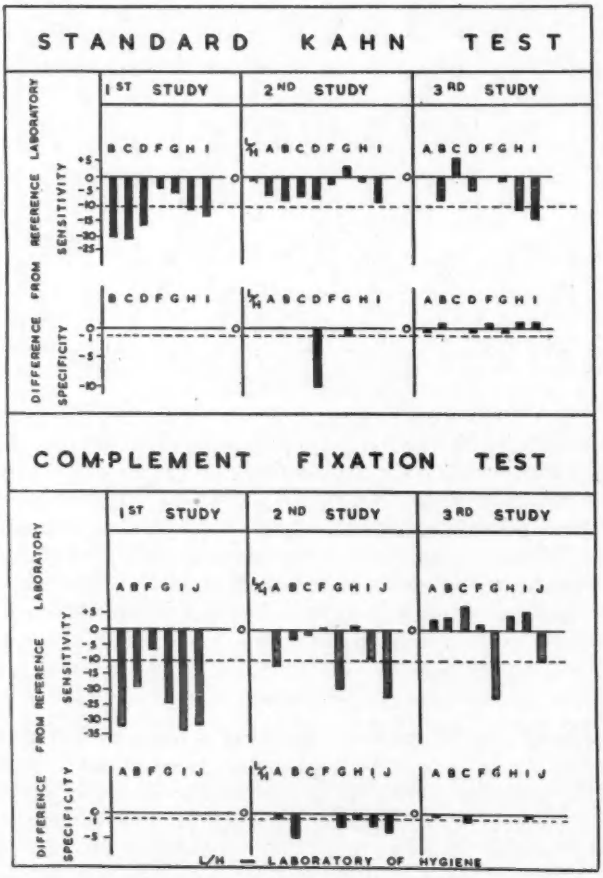
STANDARD KAHN TEST
1ST STUDY
2ND STUDY
3RD STUDY
DIFFERENCE FROM REFERENCE LABORATORY
SENSITIVITY
SPECIFICITY
B C D F G H I
L/H A B C D F G H I
A B C D F G H I
COMPLEMENT FIXATION TEST
A B F G I J
L/H A B C F G H I J
A B C F G H I J
L/H — LABORATORY OF HYGIENE

FIGURE 1

Differences in Sensitivity and Specificity between the Participating Laboratories and the Reference Laboratory in Each of the Three Evaluation Studies.

must be considered for it is more difficult to obtain a good record when there is a large proportion of weakly positive reactors. The sources of material in the nonsyphilitic group also determine the degree of excellence to be expected. A higher incidence of false reactions would be expected, for example, in a hospital population than in a group of apparently healthy individuals. The following criteria have been used by the United States Public Health Service in more recent evaluation studies (1):

"A satisfactory performance is arbitrarily considered to be one which attains a sensitivity rating not more than 10 percentage points below that of the suitable control. In specificity a rating below 99 per cent is considered unsatisfactory."

In the most recent evaluation study, two of eight laboratories fell below the 10 percentage point limit in sensitivity (13.6 and 11.3) with the standard Kahn test (Table I). In three instances the specificity ratings were just under 99 per cent (98.9, 98.9 and 98.8 per cent.)* With the complement fixation tests (Table II), seven of eight laboratories came within the 10 percentage point limit of sensitivity and in one the specificity rating was just below the 99 per cent level (98.8 per cent).

The cooperative program of the provincial laboratory directors to standardize the serological tests for syphilis was initiated in the interval between the first and second evaluation studies. Seven laboratories performed the standard Kahn test in the first study and the sensitivity levels of two of these were within 10 percentage points of the reference laboratory (Figure I). In the second study, all, and in the third study, five of these seven laboratories, were within this limit of sensitivity. Six laboratories performed a complement fixation test in the first evaluation study and the sensitivity level of one of these was within 10 percentage points of that of the reference laboratory. In the second study, three, and in the third study, five, of these laboratories were within this limit of sensitivity. The trend is therefore one of closer agreement between the provincial laboratories and the reference laboratory.

The results depicted in Figure I give, in addition, some indication of the extent of agreement between the participating laboratories themselves. Considering the results obtained with the standard Kahn test in the first evaluation study, variations in sensitivity from that of the reference laboratory ranged from − 4,5 to − 20.5 percentage points. The same laboratories in the second study showed variations ranging from + 2.9 to − 9.4 and in the third study from + 6.0 to − 13.6. Actually the range of variations in the first evaluation study was not excessive (16 percentage points) and it has not changed appreciably in subsequent studies but there has been a definite shift toward the sensitivity level of the reference group. With the complement

*It should be noted that on one specimen in the nonsyphilitic group, three laboratories as well as the reference laboratory obtained a doubtful result with the standard Kahn test and in one laboratory a positive result was obtained. The individual in question was infected with gonorrhoea and had not received treatment when the blood specimen was taken. Each of the three laboratories with specificity levels just under 99 per cent obtained some degree of reaction on this specimen. Negative results were obtained at a diagnostic laboratory on two further specimens taken seven and ten weeks later. It is felt that the status of this individual has not been finally established but, unfortunately, further follow-up studies have not been possible.

fixation tests, the six laboratories participating in the first evaluation study showed variations in sensitivity from that of the reference laboratory ranging from − 6.3 to − 33.2. In the second study, these laboratories showed variations ranging from + 0.5 to − 22.2 and in the third, from + 6.2 to − 22.2. Although the range of variations has not altered appreciably, it is evident that, in the third evaluation study, the sensitivity levels of the majority of the laboratories are in close agreement (Table II, Figure I).

The specificity levels of the reference laboratories were 100 per cent in all but once instance (third evaluation study—standard Kahn test—Table I). In the first evaluation study no false positive or false doubtful reactions were obtained by any of the participating laboratories on a very limited number of specimens from nonsyphilitic donors. The specificity ratings of the provincial laboratories in the second study, based on fifty specimens, were below 99 per cent in four instances with the complement fixation test and in one instance with the standard Kahn test. In the most recent evaluation study none of the participating laboratories obtained more than one false positive or two false doubtful reactions with either the standard Kahn or complement fixation tests on approximately 85 specimens from apparently nonsyphilitic individuals. It is felt that, for practical purposes, the specificity ratings of all the laboratories in this third survey can be considered satisfactory.

Summary

1. The directors of the nine provincial public health laboratories are participating in a cooperative effort toward the standardization of serodiagnostic tests for syphilis. Emphasis has been placed on the performance of reliable diagnostic procedures, and the use of antigens and complement prepared at a central laboratory.

2. The effectiveness of the program is being assessed by conducting serological evaluation studies.

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Hospital Crowding and Insurance

A SURVEY OF WESTERN ONTARIO

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THE use of the insurance principle as a method of payment for medical services, whether on a compulsory or a voluntary group level, introduces many new problems not encountered in the time-honoured fee-for-service system. The one difficulty that stands out above all others is that of controlling the increased demands for service usually encountered in this system of payment. Without the assistance of insurance, the major control on the demand for service is the cost of this to the individual. Our whole medical structure has been organized to the demand as determined in this manner, and on the fee-for-service basis, this is roughly in proportion to the level of income, exclusive of indigents (1, 2). The introduction of the insurance method of payment eliminates this economic control. Although there is a general feeling that the introduction of insurance is a beneficial development, it does pose new problems which result from the disturbance of the established relationship between demand and availability of services. An entirely adequate method of meeting this situation has not been developed. Most of the criticisms that have been directed towards insurance centre round the problems of coping with this new situation.

The use of the insurance principle as a method of payment of medical services is relatively new in Ontario, dating only from the late thirties in early development, and from the early forties in the coverage of any extensive proportion of the population. Hospitalization insurance, the most frequently insured aspect of medical care, has shown the greatest growth, and this development has been most marked in areas where industrialization is most advanced. The proportion of the population covered by this insurance is closely related to the numbers employed in industry. Only recently have the rural groups shown interest in this field, but, as yet, this has not developed to any extensive degree in the area. Despite the fact that the coverage of an appreciable portion of the population of Ontario with hospitalization insurance is a relatively recent phenomenon, already there is the suggestion that the decreased control on demand for services is causing difficulties. The statement is frequently made that the increased utilization of hospitals by the insured is one of the important reasons for the crowded condition found in most hospitals at the present time. If this be true, then we are encountering the

Submitted by the Department of Clinical Preventive Medicine, Faculty of Medicine, The University of Western Ontario. This study was made possible by funds from the John McClary Memorial Fund, and by a contribution from the Department of Health of Ontario.

same basic problem which has plagued all insurance schemes, that of controlling services on the basis of the new circumstances associated with the changed method of payment.

The purpose of this study has been to investigate the relationship between the growing coverage of the population by prepaid hospitalization schemes and the present congestion of hospital facilities.

Study Area and People

This study has been limited to the fourteen counties of Western Ontario, the most southern portion of Canada. It is made up of an arrow-head shaped peninsula, extending as a projecting wedge between Lake Huron and Lake Erie. In area, it is about one-quarter of the size of England and Wales, and has a population of one million, slightly in excess of the Province of British Columbia. There are no metropolitan centres, but there are numerous small manufacturing cities scattered throughout the southern portion of this area. The two largest cities are Windsor, 105,000 population, and London, 78,000 population (1941). In 1941, 53.5 per cent of the people in Western Ontario were urban dwellers as compared with 61.7 per cent for all Ontario.

The proportion of the provincial population living in this area has decreased from 40 per cent in 1900 to 25 per cent in 1941. This relative decrease has been caused by the more rapid growth of Toronto and Hamilton. This change has tended to accentuate the problem of aging of the population so that in 1941, 13.8 per cent of the population of this area were 60 years or older as compared with 11.9 per cent for the province (3). This population shift is also to be noted within the area itself. Since 1901 almost the total growth of population within the area has been limited to the four counties of Essex, Waterloo, Brant, and Middlesex, containing the cities of Windsor, Kitchener, Brantford, and London. During the same period the population of the northern counties, lacking industrial development, has decreased. This has resulted in a greater excess of the older groups in the northern section of the area (3).

The reported average annual individual earnings (male), 1941, used as a rough measure of the wealth of the area, were $993, as compared with $1,119 for Ontario and $998 for Canada. The earnings within the area vary from a high of $1,295 for Essex to a low of $674 for Huron. This uneven distribution becomes apparent when one considers that 60 per cent of the total earnings are received by those workers in the three counties of Essex, Waterloo, and Middlesex.

Method of Approach

To compare the effect of insurance on hospital utilization, the average length of hospital stay of insured and uninsured persons is frequently used. One hospitalization insurance organization in the United States reported that the average length of hospital stay and the patient days per person per year for their subscribers is slightly less than the national average (4). Such a comparison is valid only if one is certain that the insured group is representative of the general population.

A better measurement of the effect of insurance upon hospital utilization could be shown by a comparison of the age-specific hospitalization rates of insured and uninsured patients. However, as this study was conducted in an intercensal year, the age distribution of the general population could not be determined accurately and the available insurance records were not in a form to allow the determination of morbidity rates. In order to compromise between the research problem and the crude statistical material available, it was decided (*a*) to determine the proportion of the patients discharged from hospital in a specified month where the costs were covered by one large agency as a local confirmation of the U.S. findings mentioned above, and to compare this with the proportion of the population within the area covered by this agency; and (*b*) to make a study of the age distribution of a representative insured group as compared with the group in hospital and the general population. With the information obtained in this study and the previous information on the relationship between age and morbidity, it was felt that one could roughly interpret the information obtained in (*a*) in terms of the basic problem.

To understand the real situation of hospital crowding, all the public general hospitals and the two chronic disease hospitals in the area were visited. A minor source of error in morbidity was introduced by the seasonal variation of the visits, since the small hospitals were visited in the summer and the large hospitals in the fall and winter. The age, sex, length of stay, and diagnosis were obtained for all patients in hospital on the day of visit, and the age distribution calculated.

The census of 1941 was used as a basis of general population studies.

For the age distribution of insurance subscribers, a representative group of 15,000 male industrial workers was selected. The study was limited to male adults, as accurate information on the age of other insured groups was not available.

Factors Influencing Hospital Demand

Crowding in hospitals is an evidence that demand exceeds supply. Demand of this type is a rather complex subject that is influenced by many factors, of which the coverage by insurance is only one. The growth of hospitalization insurance has taken place during a period when many other changes of importance in their influence on demand were also taking place. It is impossible to discuss the one factor, insurance, without giving some consideration to changes in the other variables, which may be equally important in determining hospital crowding. The following are considered to be the more important.

1. Favourable Attitude of People

Since the turn of the century, people have been more and more favourable to going to hospital when ill. This attitude has been promoted largely by the high standard of general hospitals, the competence of doctors and nurses, and more recently the discovery of highly publicized and remarkable drugs,

sulphas, penicillin, and streptomycin, which are more readily administered in a hospital setting. This, however, is a slowly changing factor that has not appreciably changed in the past few years.

2. Training and Attitude of Doctors

During his whole training period, the 20th century Canadian doctor sees nothing but hospital medicine. Thus he is inclined to think of satisfactory medical care as meaning only hospital care. This period has seen the development of more and more essential diagnostic and therapeutic procedures and this too has increased the tendency of the physician to send his patients to hospital. Even though "adequate" and "essential" are relative terms dependent upon the level of medical care available, the fact remains that useful diagnostic and therapeutic aids are available in hospital and not in the home and no physician can be proof against the self- or professional criticism which may result from his neglect to make use of them. The busy practitioner often finds it more convenient to admit patients to hospital, where they can be seen in a fraction of the time required if each were in his respective home.

Although it is true that the doctor exercises the nominal control over hospital occupancy, there are certain basic trends which must profoundly influence his method of practice in so far as hospital utilization is concerned.

3. Availability of Hospital Beds

The absence of empty hospital beds is a very important factor in the utilization of hospital facilities. The crowding of extra beds into available space reaches a certain level and then, from real physical necessity, admissions must be controlled to admit only the more urgent cases. Thus, in a period of crowding such as we are now experiencing this factor may mask the true influence of insurance on hospital utilization. For this reason the factor of crowding must be carefully considered.

The hospital study has included all of the area's 37 public general hospitals, which contain an estimated total of 4,407 beds and bassinets.

Of these general hospitals, few have escaped the difficulties of overcrowding. Patients have been placed in corridors, in sunrooms, in offices. Busy operating rooms have been forced to stop booking for several days. One hospital put tonsillectomies on a weekly quota basis. Some hospitals have had beds in the corridors so continually that an examination of their room rates revealed "bed in corridor, $3.50."

Experts in hospital administration consider that the ideal occupancy of a hospital should be 75-80 per cent or less in order to allow a 20-25 per cent buffer for emergency and for specificity of accommodation. This is an overall figure that makes no allowance for variation of congestion in different divisions, so that even with 20 per cent of the total beds empty, those in the obstetrical ward might be filled and an extra bed would have to be set up for a new maternity admission. Thus, the hospitals can be crowded even at 80 per cent occupancy. The small hospitals must allow a lower maximum percent occupancy because their numbers do not allow the elasticity for emergencies as with the larger units.

Of the small hospitals, the average per cent occupancy for 1946 varied from 61.5 to 107.5 per cent of ideal capacity. Of the large hospitals, the per cent occupancy for 1946 varied from 75.9 to 108.6 per cent of ideal capacity; average for small hospitals, 78.5 per cent and average for large hospitals, 88.7 per cent. The magnitude of the problem of crowding in public general hospitals, which has been evident from the most superficial observation, is confirmed by these findings.

There was no appreciable hospital construction for the period from 1930 to 1940. In the meantime, the population increased and tended to migrate into the industrial areas, so that desperate urban hospital construction during the last five years has given very little relief to a continuing problem of hospital bed shortages.

Hospitalization of obstetrics is the most obvious easily-measurable factor in hospital crowding. The percentage of hospital births for all Ontario increased from 42.59 in 1934 to 77.0 in 1943. In a study of births in the 16 larger hospital communities within the area it was found the births in hospital to resident mothers had risen from 53.6 per cent in 1934 to 94.4 per cent in 1944, an increase which may certainly be considered to have reached its maximum. The future trend will be influenced by the variation in the birth rate and the spreading of the tendency for hospital deliveries from the urban to rural areas, the general pattern of all social change.

4. The Home

The facilities for caring for illnesses within the home have a decided influence on the request for hospital admissions. This is a factor that can not be accurately measured from available information. However, the congestion in the urban areas with the large number of multiple families in one dwelling is well known and such a situation makes it extremely difficult to care for even the most minor illnesses. The small post-war homes present similar difficulties which are accentuated by the lack of available help within the home.

5. Aging Population

In 1941 there were twice as many people 60 years of age and over within the area as there were in 1901 (3). There is every reason to believe that the percentage of the population in this older age group will continue to increase as it has since the first census of 1871. The markedly increased incidence of the chronic diseases in the upper age groups makes this changing composition of the population of vital importance to the problem of hospital care (5).

The age, sex, length of stay, and diagnosis were recorded for 2,565 patients in hospital in Western Ontario on selected days. When these data were grouped by size of hospital, it was found that the proportion of patients 60 years and over was 41.1 per cent in small hospitals, 30.1 per cent in large hospitals, 32.1 per cent in teaching hospitals, and 31.9 per cent for all hospitals. The predominating diagnoses of these elderly patients were cerebrovascular accident, cancer, diabetes, peripheral vascular disease, influenza, fractured hip, prostatism, and senility. Thus the problem of providing adequate care

for the chronic diseases of the upper age group stands out as an exceedingly important aspect of this problem. This is most apparent in the small hospitals but is still a problem of considerable magnitude in the large and teaching hospitals. This factor of aging of our population, with its associated problems, is being repeatedly stressed. However, this is a very slow change that is measured in terms of generations rather than years. This, in itself, can not be of importance during the relatively short period during which the situation in hospital accommodation has changed.

6. Improved Economic Status

There are two other important factors which have recently relieved the economic barrier to hospital care. One has been the application of the insurance principle to the payment of hospital bills and the other has been the increased earning power during the war. Hospital accommodation has received the same business boom as have the various consumer goods. This situation is further accentuated by the fact that the very moderate increase in room rates, compared to general inflationary prices, makes hospital accommodation a present-day bargain.

7. Hospitalization Insurance

The term hospitalization insurance as herein used applies to all the various applications of the insurance principle to any payment of hospital bills. It thus includes cash indemnity and service benefit, partial and complete coverage organizations, all of which are voluntary schemes in this province.

(a) Comparison of Hospital Payment and Coverage Within the Population

Of the hospitals in the area, 22 kept accurate records of hospital bills paid by insurance. In the month of July, 1946, this group of hospitals discharged 8,216 patients. Of this group of patients, 1,193, or 13.3 per cent of the total, were covered by the one agency used for the study. As of September 30, 1946, 123,611, or 12.8 per cent of the population in this area, were covered by this agency. Therefore, the actual proportion of insurance subscribers using hospital services is essentially the same as the proportion of persons insured within the population. This corroborates the more extensive findings of the Blue Cross in the U.S. study concerning the effect of their membership on hospitalization (3).

(b) Comparison of Age Distribution of Insured, Hospital and General Population

The findings of the relationship between coverage of a population by insurance and their discharge rate from hospital are significant only if we are certain that the insured group is unselected in the various factors of importance in determining morbidity rate. There are many factors of importance, but the one of age stands out in significance above all others. Thus the age distribution of the insured groups was compared with the patients in hospital and the general population within the area.

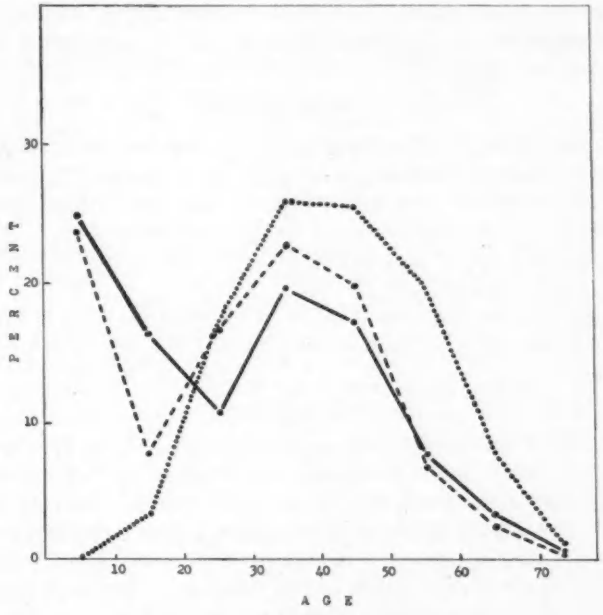

FIGURE I

Age Distribution of Subscribers in Three Insured Groups.

Figure 1 shows the age distribution of the subscribers in three insured groups. From this figure it is seen that all three agencies have essentially the same age distribution. This, we would feel, is a fairly characteristic picture of the age distribution of insured groups, since their method of selecting their clients is carried out on the same general basis. Moreover, this selective process is such that it would be expected to result in this type of distribution.

For matter of comparison with the hospital and the general population, one of these three agencies, covering 15,000 male employees, was selected for comparison. Males alone were selected as the insurance records are more accurate and the hospital records are not influenced by obstetrical patients. This was compared with the age distribution of male patients in hospital on selected days of visits to the hospitals. As would be expected, neither the insured group nor the hospital patients are representative of the general population. The insured group represents a fairly typical normal distribution curve centering about the 40-year age group, whereas the hospital population shows an excess in the upper age group. Thus, the insured group shows an excess of population in the age group with a low morbidity experience. Therefore, the previous finding by the U.S. insuring group that their group used hospital accommodation at the same level takes on new significance,

for our experience has shown that 30-40 per cent of the hospital population is over 60 years of age, whereas only 8.5 per cent of the insured persons are within this older age group.

Summary

1. The relationship between hospitalization insurance and present hospital crowding has been studied.
2. The utilization of hospital facilities by insured groups is essentially the same as the general average for the population.
3. The insurance subscribers are recruited from the section of the population with low morbidity rates.
4. Between 30 and 40 per cent of patients in public general hospitals are 60 years of age or older and very few of this group are covered by insurance.

Conclusions

On the basis of representative figures on utilization of hospital facilities of the insured group as compared with the average and the difference in the age composition of the two groups, it seems justifiable to conclude that the use of insurance as a means of paying hospital bills does increase the utilization of service beyond that expected of uninsured persons. This finding should hardly be unexpected as it is one of the purposes of the insurance principle to allow people to go to hospital who might not otherwise be able to defray the expense of this form of treatment.

The degree to which this increased demand by insurance subscribers influences present hospital crowding cannot be answered from this study, perhaps not from any study. Insurance is simply one of many previously outlined factors influencing the demand for hospital accommodation. The influence of insurance must vary in relation to the changes in the other factors discussed. At the present time the limiting factor is the lack of available beds. If this were changed, then insurance would undoubtedly be a bigger factor than at the present time. As there is a constantly changing balance of controlling influences, any detailed findings on one aspect would apply only to the time of study and in a few months the whole situation might change. At the present time lack of hospital accommodation appears to have taken the place of the economic control which previously limited the use of services.

The care of the elderly individuals, a group covered to a very limited degree by insurance, would appear to be the outstanding problem of hospital care at the present time.

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Mortality Reductions in Ontario, 1900-1945

VIII. RESPIRATORY DISEASE

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FOLLOWING the practice of trying to give back to the medical profession who so dutifully fill out all the death certificates something of what they add up to over the years, the death rates charged to the respiratory group (including, of course, influenza), by age, in Ontario (1) from 1900 to 1945 are outlined in Figure I. The rates from 1880 to 1931 have already been analyzed by Dr. Mary Ross (2) who pointed out: First, the persistent maintenance of the earlier high levels of the rates indicating clearly the failure of public health and/or medicine to achieve any amelioration of this mortality problem in that period. Second, the occurrence, in some years, of mortality in excess of the usual level, the excesses being indicative of "flu," involving generally all age groups and, apart from the 1918-20 period, to a proportionately equal extent (that is, when an age group with, say, a usual level of 1,000 deaths per 100,000 would show an increase of 10 per cent, i.e., to 1,100, one with a usual rate of 50 would show an increase of about 10 per cent (i.e., to 55), and other age groups in similar proportion). Third, the spectacular increase in the rates in 1918 and the smaller but still large excesses in 1919-1920. Fourth, the equally spectacular difference in the distribution of the excess mortality in 1918 and, to a lesser extent, in 1919-20 from the usual distribution of excess; in these years the increases in the various age groups were not proportionately equal; instead, the rate for the 20-29 age group rose, in 1918, to twenty times its usual level, the increases on either side of this group being progressively less so that in young and old life there was little or no excess. Fifth, the quite marked increases in respiratory mortality in 1915 and 1916 and 1917, the increases being as usual fairly uniform, proportionately, in the various age groups; it was suggested that the 1918-20 experience was related to these earlier increases rather than being due to the importation of a new infection. When Dr. Ross analyzed these rates, no generally acceptable explanation of the 1918-20 experience—its explosiveness, its extent, and its unusual distribution of excess mortality—could be given nor can one be given now. (As rates of total mortality are free from any influence of difference in diagnosis and thus may give a truer picture of excess mortality due to "flu" than do rates charged to any specific group, the rates of total mortality for the various ages are shown for comparison in Figure II. The colloquialism "flu" is used deliberately as an expression of uncertain connotation.)

In the data accruing since 1930, the strongest feature is the very definite and fairly abrupt decline beginning in the late 1930's. This decline involves

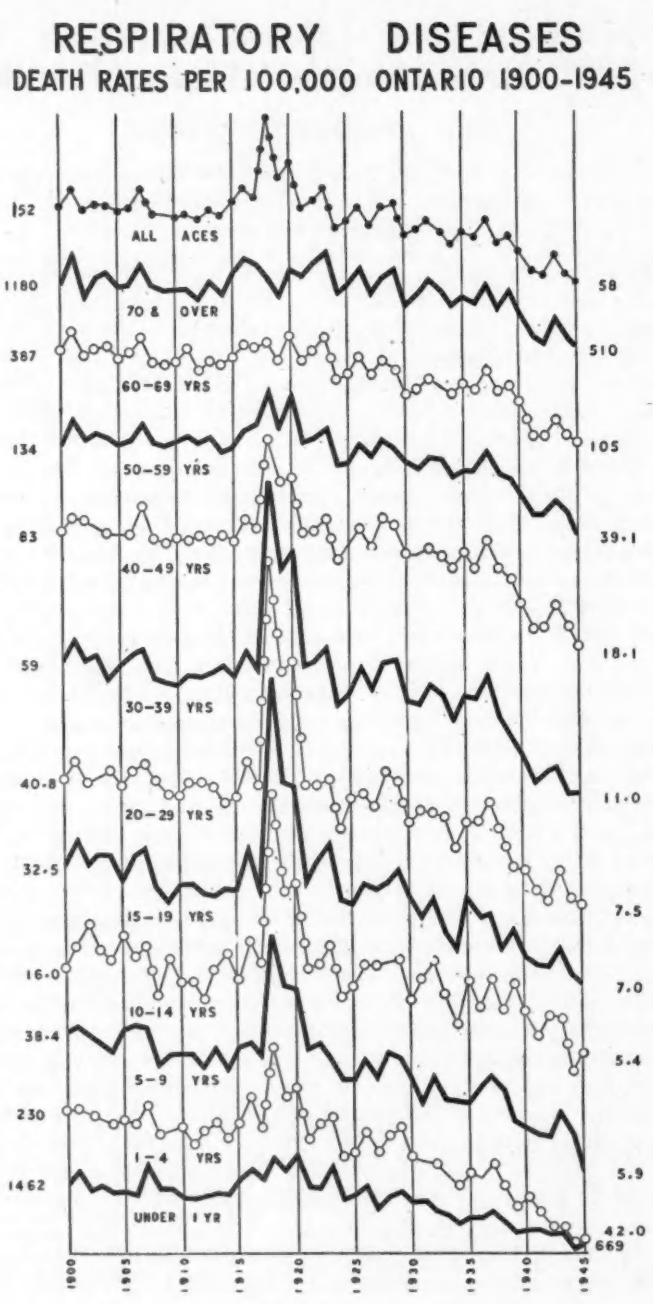
RESPIRATORY DISEASES
DEATH RATES PER 100,000 ONTARIO 1900-1945
152
ALL AGES
1180
70 & OVER
58
387
60-69 YRS
510
134
50-59 YRS
105
83
40-49 YRS
39.1
59
30-39 YRS
18.1
40.8
20-29 YRS
11.0
32.5
15-19 YRS
7.5
16.0
10-14 YRS
7.0
38.4
5-9 YRS
5.4
230
1-4 YRS
5.9
1462
UNDER 1 YR
42.0
669
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945

FIGURE I

nearly all age groups but is perhaps most marked in middle life; with one or two interruptions as in 1939 and 1943 it carries the rates down to progressively lower levels. Coinciding with the use of effectual chemotherapy, it is undoubtedly due to those agents and later to the addition of antibiotics. In strong contrast with the failure in past experience, it reflects some degree of success attained in combatting respiratory mortality.

In the 1930-1936 period, i.e., previous to the introduction of chemotherapy, the rates in most of the age groups were slightly below the usual level, some at lower levels than had been recorded in the previous 30 years. For several reasons, however, this slight decrease cannot be interpreted with any assurance as indicative of a decreased hazard of respiratory mortality. It might be merely a chance fluctuation, but, because of its occurrence in nearly all age groups, is more likely the result of some other factor. It could possibly be due to diagnosis being influenced by the vast amount of publicity given to pneumonia in both the medical and lay press at that time. It could possibly be due, too, except in early life, to the waves of unusually high mortality in the preceding fifteen years weeding out those most susceptible. It is thus of uncertain causation and significance.

In early life, especially in infancy, the earlier reduction appears to be somewhat better established and, continuing, it develops into a definitely declining trend. This has been referred to previously and attributed, in part, to a reduction in substandard, debilitated children in the population, in combination with other factors (3). It is to be noted, particularly, that recorded respiratory mortality in infancy was not as much influenced by chemotherapy as was that in other age groups.

The years of excess mortality subsequent to the 1918-1920 period show clearly the reversion to the earlier picture with the excesses practically equal, proportionately, in the various age groups.

The declines are of such extent that the rates of respiratory mortality in 1945 are only one-fifth to one-half of the earlier rates. These declines have contributed materially to the striking declines recorded in total mortality in the various age groups under 50 years.

In spite of these remarkable declines in deaths charged to the respiratory group (plus influenza), the remaining mortality so charged is by no means negligible. The repiratory group (plus influenza) still holds, in the records, a relatively high place as a cause of death in all age groups of life. Unfortunately we do not know precisely what these recorded deaths connote or represent. We know, on competent clinical authority, that pneumococcal pneumonia, properly treated, rarely has a fatal termination except in the presence of complicating disease—cardio-vascular-renal, metabolic, etc. But we do not know to what degree such complications account for the deaths charged now in these categories or how many are due to inadequacy of treatment or are caused by aetiological agents insusceptible to any chemotherapy or antibiotic so far developed. The interpretation of vital statistics thus suffers seriously from our ignorance of what the figures really mean. The information required for a fuller interpretation of vital statistics could be

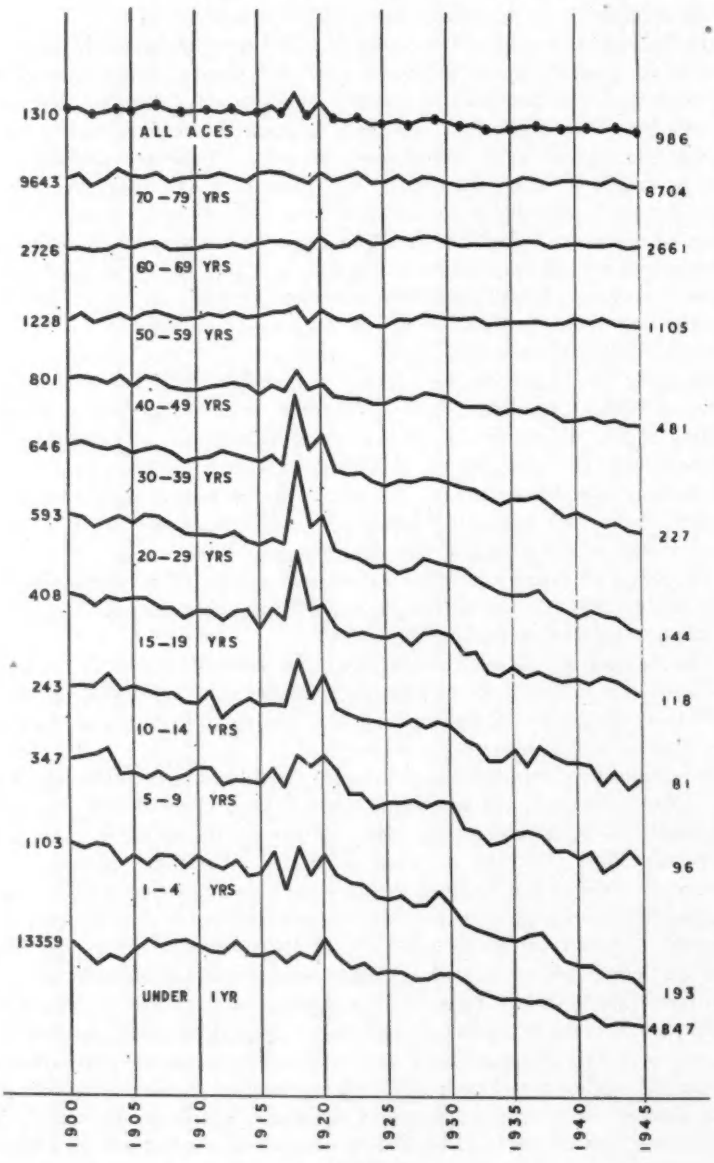
ALL CAUSES
DEATH RATES PER 100,000
ONTARIO 1900–1945
1310
ALL AGES
986
9643
70–79 YRS
8704
2726
60–69 YRS
2661
1228
50–59 YRS
1105
801
40–49 YRS
481
646
30–39 YRS
227
593
20–29 YRS
144
408
15–19 YRS
118
243
10–14 YRS
81
347
5–9 YRS
96
1103
1–4 YRS
193
13359
UNDER 1 YR
4847
1900
1905
1910
1915
1920
1925
1930
1935
1940
1945

FIGURE II

most readily and most satisfactorily obtained and provided through the co-operation of the key men in medicine and public health, the family physician and the local medical officer of health. For each death, each of these must invariably confront himself with the question,—Why did the patient die? In many instances the answer cannot be given; nevertheless, if all the available answers, all the available information, were studied, some part of the truth, though not necessarily the whole, would likely emerge. The family physician has the clinical details and the local medical officer *should* have immediate information of the occurrence of each death. The co-operation of these two social agents in co-ordinating and studying all the available information should not be difficult to achieve.

Summary

The recorded age-specific mortality rates for respiratory disease including, of course, influenza, in Ontario, 1900 to 1945 are outlined. The outstanding feature of the data up to 1930 (apart from 1918 experience) is the persistent maintenance of the high level of the rates; neither medicine nor public health had achieved any reduction in this mortality over the years.

The outstanding feature of the period since 1930 is the fairly abrupt decline in nearly all age groups coinciding with and due to chemotherapy and later to antibiotics.

A slight decline in nearly all age groups in the early 1930's is of uncertain causation; it cannot be interpreted with any assurance as indicative of a decreasing or even decreased hazard of respiratory mortality.

In young life, especially in infancy, the earlier decline, before efficient chemotherapy, appears to be more definitely established and can be interpreted with some assurance as indicative of and part of a declining trend.

The mortality rates in infancy do not show as much reduction with chemotherapy as do the rates in other age groups.

The real causes of the mortality charged now to respiratory diseases are not known.

A true explanation of the causes of the remaining mortality and of the failure of the rates in infancy to show as much reduction, with chemotherapy, as did the rates in other age groups can most readily and most satisfactorily be obtained and provided by co-operation of the key men in medicine and public health, the family physician and the local medical officer of health.

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DR. R. G. FERGUSON RETIRES

ANNOUNCEMENT in September of the retirement of Robert George Ferguson, B.A., M.D., LL.D., O.B.E., as Director of Medical Services and General Superintendent of the Saskatchewan Anti-Tuberculosis League after thirty-one years of service has permitted of tributes of affection and appreciation from all parts of Canada. An illuminated address presented to him by Premier T. C. Douglas on behalf of the Government and the people of Saskatchewan expresses their gratitude and esteem, and constitutes a worthy tribute to one who has exemplified in his life all the ideals of a true physician. Commenting on the great demonstration of affection and regard by members of Dr. Ferguson's staff, patients in the sanatoria, ex-patients, and a host of friends and professional colleagues, Mr. Douglas said: "Not before in the history of this province has there been such a universal expression of regard for one man." In his tribute to Dr. Ferguson, the Honourable J. M. Uhrich, M.D., Lieutenant-Governor of Saskatchewan and Minister of Public Health for many years, recounted the outstanding achievement in the conquest of tuberculosis in that province, as evidenced by the reduction in the mortality from 50 to 17 per hundred thousand of population. "A great physician, a fine citizen, a good friend, his great ability, kindness and enthusiasm shall forever remain an inspiration to those who continue the work to which he has devoted so many fruitful years."

These and other tributes were presented to Dr. and Mrs. Ferguson at a banquet tendered by the Provincial Government and at a reunion at Fort Qu'Appelle which was held by 600 ex-patients to show their gratitude and affection. On this occasion, Dr. and Mrs. Ferguson were presented with a cheque for twenty-five hundred dollars from the ex-patients, with the admonition that "it was not to be used for good works!" Greetings were extended on behalf of the Canadian Tuberculosis Association, the National Tuberculosis Association of the United States, the American Trudeau Society, and the Manitoba Sanatorium Board with which Dr. Ferguson worked closely from the beginning.

It is interesting to recall that Dr. Ferguson was appointed medical superintendent when the Fort Qu'Appelle Sanatorium was officially opened in 1917. The League had been formed in 1911 and the site for the sanatorium had been selected, but construction had been delayed because of the war.

In 1923 a travelling consultant service was commenced, and in 1925 Saskatchewan's second sanatorium, at Saskatoon, was officially opened. Under Dr. Ferguson's leadership, a preventorium was established at Fort Qu'Appelle, and in 1930 the sanatorium at Prince Albert was officially opened. Dr. Ferguson was among the first in Canada to use B.C.G. vaccine, introducing it in the Qu'Appelle Indian Health Unit in 1933 and providing in 1938 for the vaccination of tuberculin-negative employees in hospitals and sanatoria. A keen student of epidemiology, he traced the story of tuberculosis as it occurred in the Indian population, noting the occurrence of epidemics of the disease. His scientific publications have been of the highest order and have constituted important contributions to the knowledge of the control of tuberculosis. The value of fluorographic surveys was appreciated by him, and in 1941 these were undertaken throughout the Province. By 1947 the initial survey of the Province had been completed.

Dr. Ferguson is being succeeded by his colleague, Dr. John Orr. To Dr. Ferguson the Canadian Public Health Association expresses its admiration for his great accomplishment in public health, and to Dr. Orr its best wishes.

THE HONOURABLE FRANK R. DAVIS, M.D.

IN the passing of the Honourable Frank R. Davis, M.D., C.M., F.A.C.S., Minister of Health and Welfare since 1932, the Province of Nova Scotia has lost a distinguished citizen who had devoted his life to public service in two fields, medicine and government. Dr. Davis died on September 17th at Ingonish, while attending the annual meeting of the Nova Scotia Medical Society. At the time of his death, he held the three portfolios of Minister of Public Health, Minister of Welfare, and Minister of Municipal Affairs.

Dr. Davis was born at Shelburne, N.S., in 1888, and educated at Mount Allison and Dalhousie universities. He began the practice of medicine as a physician and surgeon in Petite Rivière in 1911. Eight years later he set up practice in Bridgewater, and for many years served as medical health officer for Lunenburg County. From 1930 to 1934 he was Mayor of Bridgewater, and in 1933 he was elected to the Nova Scotia Legislature. He had been a cabinet minister and a member of the Legislature since that time.

Dr. Davis gave effective support to the officers of the Department of Public Health in the development of a program that has placed Nova Scotia in the forefront of the Provinces in public health work. Outstanding has been the provision of free treatment for tuberculosis and mental diseases. The new building for the Victoria General Hospital in Halifax, which was formally opened last spring, was an achievement for which he was very largely responsible. He was particularly interested in the enlargement and improvement of the program for the care of the mentally deficient in the institution at Truro and the development of the training school for boys at Shelburne.

Dr. Davis will be remembered for his heroic part in the Moose River mine disaster of 1936, when he assisted in the rescue of Dr. D. L. Robertson and his partner, Mr. Alfred Scadding, by going down into the treacherous mine to prepare the trapped men for their perilous journey to the surface.

The Canadian Public Health Association shares in the loss occasioned by his passing, for in accepting the nomination of Honorary President last May he had expressed his keen interest in the organization. In recent weeks he had been actively planning, with the members of the local committee, the program for the 1949 meeting, which will be the first meeting to be held as part of the bicentennary celebrations of the capital city of the Province to which he had contributed so much.

INCOME TAX DEDUCTIONS FOR CONVENTION EXPENSES

REPRESENTATIONS in regard to income tax have been made to the Department of National Revenue by the Canadian Medical Association. There were two main requests, namely, that doctors be permitted to deduct the expenses of attending certain medical meetings and that salaried physicians be permitted to deduct certain professional expenses.

In regard to the former, the Department has agreed to permit physicians, excepting salaried physicians, to deduct expenses incurred in attendance at medical meetings. The meetings allowed are three in number, one per year of the Canadian Medical Association, one per year of either a provincial medical association or a provincial society, and an association of specialists in Canada or the United States.

In regard to the request on behalf of salaried physicians for deductions of certain professional expenses, the Department stressed the fact that the salaries of all taxpayers were to be regarded as net income and not to be subject to deductions of any kind. It was pointed out, however, that salaried doctors might arrange with their employers to have certain reasonable expenses paid by the employer, over and above the salary as part of the terms of employment.

Physicians serving in full-time public health work have reason to question this ruling. The value of scientific meetings is as great for physicians serving in public health as in any other field of medicine. Further, the salaries received by physicians in public health are recognized to be substantially below the income of their colleagues in practice. Municipalities, moreover, are often reluctant to grant payment to medical officers for expenses incurred in attending scientific meetings, since other departmental heads might properly expect similar privileges. Medical officers, therefore, generally have to meet their own expenses in attending the annual conferences of their profession and of their special fields of public health. At a time when every encouragement should be given to those who enter public health to serve under civil authorities, it is unfortunate that medical officers should be disallowed the expenditures entailed in attending the professional association meetings when practising physicians are granted this exemption. It is hoped that further consideration may be given by the Department to extending to medical officers of health the exemption that is now accorded practising physicians. In the meantime, it would be expedient for salaried medical officers in public health to discuss this question with municipal and other authorities when the budgets for the departments are being prepared for the coming year.

Letter from Great Britain

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M.A., Camb.; Barrister-at-Law
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Public Health Department, West Riding of Yorkshire
Wakefield, Yorkshire, England

SINCE the appointed day for the National Health Service Act conferences have been taking place between the three types of authority, Hospital Board, Executive Council and Local Health Authority. There is a new spirit abroad here, an awareness of the need for unity of medicine to be preserved. Whatever else Mr. Bevan may have done, he certainly has solidified medicine. General practitioners are showing signs of wanting to work more closely with health authorities and a greater appreciation of what the health visitor, the district nurse, and the home help can do for them; the medical officer of health looks much more like a friend to the general practitioner than ever he did before. This is to some extent due to the virtual disappearance of private practice (over 90 per cent of persons have signed their cards) but it is also born from the spreading appreciation of the meaning of social medicine. Hospitals Boards have early realised that their work must be closely related to that of the Health Authority; particularly is such integration necessary in the 'socio-medical services' and also in the work of 'specialists'. I should like to take a little of your time telling you of the results of negotiations on these two subjects with the Leeds Hospital Board, which have been reached after round-table talks between the medical men on the Board and medical officers of health of counties and county boroughs in this hospital region.

'Socio-medical services' form an important element of that branch of medicine which seeks to apply medical and scientific knowledge to prevention and rehabilitation of illness; what we now call social medicine. They include functions carried out by auxiliary medical workers for the most part within the community itself. This work has been highly developed in England with social workers of different types and training: the sanitary inspector, the health visitor, the district nurse, the almoner, the tuberculosis nurse, the V.D. social worker, the school nurse, the boarding-out visitor, the psychiatric social worker and the mental deficiency social worker are examples. The fundamental purpose of such services is to help the doctor by doing things which he has neither time nor opportunity to tackle. Health education, the provision of background histories, the solving of personal problems which retard recovery, child guidance, home care of the mental defective, advising tuberculosis patients on how to live, tracing contacts of venereal disease—these time-consuming jobs can be done by people with less than a complete medical training. One of our difficulties is that we don't know just what form the training should take; the education of the sanitary inspector and the district nurse are straightforward but as regards other types of social worker there is a sharp cleavage of opinion between those who wish to employ a nurse with additional training in preventive and social medicine and those who prefer a university graduate with a social science diploma.

Owing largely to piecemeal growth of our institutions, the socio-medical

services within the hospitals have developed independently of those attached to the medical officer of health; indeed, this is one of the main reasons why two different types of training exist. The hospital developed the almoner originally to cope with money assessments and recoveries and she is only now progressing slowly into an auxiliary to the hospital doctor; concurrently the medical officer of health developed the health visitor first to deal with mothers and babies, with duties gradually extended to cover school health, tuberculosis and child life protection, and now statutorily widened (S.24 National Health Service Act) to the whole family. The more progressive hospitals have begun to realise that diagnosis and treatment in hospital is handicapped without a detailed account of the patient's life and circumstances in the community and, furthermore, that all or much of their time and trouble may be wasted if care is not taken to follow up patients and help them after going home; to obtain background histories and assist rehabilitation, they have extended the work of the almoner into the community. The medical officer of health at the same time sees little point in dealing with the family's problems without reference to happenings in hospital, and since his department already acts as a bureau of socio-medical information of school health, maternity and child welfare, venereal diseases, housing, etc., with himself as the nerve centre, he naturally considers that he can extend this facility to the hospital. The net effect of all this is to produce a duplication of home visiting; the social workers of the health authority and those of the hospital are in danger of competing for the same families. Heaven knows how long the Englishman's home will remain his castle.

This, then, is the point at which our negotiations had to begin; regional boards and health authorities had to agree on zones of responsibility to avoid double visitation and dual control. The basis of our agreement is simple, namely that within the hospital, and its associated special departments and out-patient clinics, the socio-medical services are the responsibility of hospital management committees (exercised on behalf of the regional hospital boards) under the provisions of Sections 11 and 12 of the National Health Service Act, and that in the community the socio-medical services are the concern of the local health authorities, who are responsible under Section 28 of the Act "for the prevention of illness, the care of persons suffering from illness or mental defectiveness and the after-care of such persons"; that the services of the health authority's social workers at the respective clinics of the hospital management committees, i.e. tuberculosis visitors at the tuberculosis dispensaries, V.D. social workers at the venereal diseases clinics, mental health social workers at the psychiatric clinics, should be considered as part of their normal duties. By a curious anomaly of our legislation the supervision of mental defectives on licence from mental deficiency colonies continues to be the responsibility of the management committees. It is hoped that health authorities will agree with the regional boards to do this work on their behalf and also, where possible, that the social psychiatric workers will be jointly employed by both authorities to bring about the greatest possible link-up of the social work within the mental hospital and the community; this can be done under Ministry of Health Circular 100/47.

To sum up, the regional hospital boards will be responsible for the socio-medical work in hospitals and local health authorities for that outside. In some parts of the country we have already gained practical experience of such a working partnership between health authorities and hospitals; here the arrangements made for free treatment of school children under the Education Act, 1944, have included an agreement by hospitals to notify the school health authority

whenever a child is admitted or discharged, with details of the hospital findings, and similarly by the health authority to furnish the hospital, when necessary, with background information and to follow up each child to ensure that the hospital recommendations are given effect to. But we do not yet know how much information or what sort of detail needs to be interchanged; time will show. It will probably differ in the various types of institution, such as sanatoria, general hospitals, maternity homes, mental deficiency colonies, etc. The usual procedure of sending the patient's own doctor a confidential report will be followed and, in addition, where after-care is needed the almoner will enclose a note to the doctor asking him to make use of the health authority's socio-medical services and suggesting that he send an attached slip asking for this to the medical officer of health; she would send a copy of such note to the medical officer of health himself. Great care will need to be exercised by health authorities to ensure direct contact between health visitors and almoners to avoid ill-effects of what might develop into a bureaucratic procedure.

This decision in relation to the sphere of action in socio-medical work augurs well for a happy relationship in the new service; it also emphasises the great need to extend this form of work but it does more than this; it brings sharply to the fore the discrepancy in this country between the training of almoners and health visitors. To consider in more detail the training of these two women, the hospital almoner is usually a university graduate who, as part of a social science diploma, has done family case work with organisations such as the Personal Service Society of Liverpool and who subsequently takes a year's special course of training of the Institute of Hospital Almoners. She is, therefore, highly trained in the details of case taking and handling but she has no special instruction in any medical subject and she lacks the practical experience of looking after sick people. The health visitor is a state registered nurse, who takes the the first part of the midwifery qualification and then six months' post-graduate training in health visiting; thus, she is trained in medical subjects, she has practical experience in the care of sick people, but she has much less instruction in the operation of the social services than the almoner. Deliberations are going on in high quarters to try to bring about an amalgamation of training, as it is felt that those who undertake socio-medical work in hospital and in the community should have a common training.

There has also been agreement about the work of specialists in preventive medicine. The long training at a teaching hospital, including a registrarship and a higher qualification in the special subject which he professes, have become accepted avenues of approach to the coveted position of specialist; in order to attain to the highest position in the consultant world the registrars have lived in penury and devilled laboriously for years in the London teaching hospitals. Yet there is no precise definition of 'a specialist' nor is there an official role; he has grown up imperceptibly from the general practitioner who, in the early days, was consulted for his wisdom by his colleagues and elected to the visiting staff of the hospital. It is generally considered that a specialist should not be engaged in general practice but there are many who profess to be specialists today who also run a practice, for example, surgeons in country districts, and not all have a higher qualification or long hospital training. This question of definition is now under close scrutiny in government and professional circles; for the moment at least the decision as to who is a specialist, and who is not, is being left to each regional board to decide. Each board has appointed a Specialist Advisory Committee with a

number of technical panels in different specialties and among other things the technical panels can tackle this difficult problem for their own specialty.

For individual medical men and women much may depend on the decisions arrived at, since a specialist status is expected to carry higher rates of pay, both full time and part time. The consultant has always been able to command higher fees than the general practitioner and many have enjoyed large incomes. Thus we read in Lord Macaulay's diary for January 14th, 1851, at the time he first began to complain of symptoms for which Dr. Bright treated him (it seemed to indicate auricular fibrillation, of which he died eight years later, his History still unfinished, an irremediable loss to mankind): "Here (in London) where Brodie and Bright make more than £10,000 a year. . . ." Such a salary without income tax and at the lower cost of living has no equal in England today; Bright must have lived like a Lord. They do say that some of the London pundits can still make £20,000 a year. They must be few and it is uncertain how long they will continue to do so. A Committee under the Chairmanship of Sir Will Spens, upon which the heads of the Royal Colleges and other eminent persons sat, has just reported (Command 7420); their terms of reference were:

"To consider, after obtaining whatever information and evidence we thought fit, what ought to be the range of total professional remuneration of registered medical practitioners engaged in the different branches of consultant or specialist practice in any publicly organised hospital and specialist service; to consider this with due regard to what have been the financial expectations of consultant and specialist practice in the past, to the financial expectations in other branches of medical practice, to the necessary post-graduate training and qualifications required and to the desirability of maintaining the proper social and economic status of specialist practice and its power to attract a suitable type of recruit, having regard to other forms of medical practice; and to make recommendations."

Briefly, their recommendations are that specialists in training (the five years or so demonstratorship and registrarship) should receive £600 rising to £1,200 a year and that after appointment to the staff of a hospital the salary should be £1,500 from the age of 32, rising to £2,500 by annual increments of £125, with a top ceiling of the more eminent members selected by a national committee as being worthy of distinction "in recognition of special contributions to medicine, exceptional ability or outstanding professional work (other than administrative)"; these pundits should comprise roughly one-third of the total specialists; 4 per cent receiving an additional £2,500 as being in the highest grade, 10 per cent an additional £1,500, and 20 per cent an additional £500. This is only a report and needs to be made the subject of regulation by the Minister; if so, the perquisites of the specialist world won't be too distasteful, and the suggested new salary scale with its security, pension rights and the provision of reasonable salaries in the early years, is likely to prove attractive. It is hoped that medical officers of health and medical superintendents of hospitals, who appear to have been excluded from the specialist class by the wording of the Spens report, will receive equivalent awards.

Thus, the specialist has grown up out of the hospital system and has been concerned with the cure of disease; very few have played much part in prevent ve medicine, notwithstanding that Southwood Smith of the Westminster Hospital sat with Chadwick and Lord Ashley on the first Board of Health (1848 to 1858) and Simon of the St. Thomas' Hospital became London's first medical officer of health (1848). The traditional orientation of specialism towards the hospital is now beginning to change. The change may be said to have begun with the establishment of specialist clinics within the school health and maternity and child welfare services, but the medical officer

of health feels that much more is needed. The principle which he upholds is that the place of the specialist in the field of preventive medicine must be equal to that which he holds in curative medicine; in a word, that he must act for his specialty as a professional head in the preventive service just as he does as a clinical chief in hospital. In this way he can have a professional allegiance to preventive medicine equal to that which he has to curative medicine; he can add his special knowledge to the planning of preventive measures with the medical officer of health; he can be the philosopher, guide and friend to the professional staff engaged in the preventive field in the work of his specialty, and his allegiance to preventive medicine should not fall short of a desire to abolish the need for special institutions for the sick. The extension of the work of specialists to act as the professional heads in the preventive service should also be an important step towards an affiliation of health departments with the university for teaching purposes.

The agreement reached on this score is that specialists in paediatrics, obstetrics, orthopaedics, oto-laryngology, ophthalmology, dermatology, venereal disease, psychiatry and mental deficiency, should be appointed by the regional hospital board in accordance with the terms of the National Health Service (Appointment of Specialist) Regulations, 1948, and that *the duties and responsibilities in regard to the preventive and after-care services of the local health authority should be clearly defined in the terms of appointment.* Briefly, the specialist will be appointed and paid by the regional hospital board but he will serve in the preventive as well as in the curative field. It is up to the local health authorities now to push ahead by creating positions for specialists as professional heads in the preventive services; the way is open for considerable advances. When the skin specialist is the professional head of preventive skin diseases, perhaps the number of poor unfortunates who throng his out-patient department will begin to decline; the orthopaedic surgeon will be able to carry his influence into physical training, remedial exercises and the prevention of physical defects in schools; the paediatrician will find new realms of great interest in the school health service. All pundits have a lot to offer in this way; perhaps the obstetrician is one of the most clear-cut examples. The obstetric specialist in the area allotted to him would be the consultant to the normal and abnormal midwifery units in the area, he would hold specialist clinics to which abnormal cases could be referred from general practitioners or clinic medical officers on the staff of the local health authority, he could help with the teaching of midwives and integration of the work of the midwife, the general practitioner and health department, and he could study with the medical officer of health the special circumstances affecting maternal life in his area and assist in field research. In the West Riding some important steps have been taken to give effect to this ideal; they are perhaps small, but when the whole of medical training for a century has been centred on the hospital and the cure of sickness, the reorientation towards the community and health can only come about slowly.

NEWS

British Columbia

REGISTRATION FORMS have been issued for the provincial hospital insurance plan and the scheme will come into operation January first. The annual tax will be $15 for single men and women without dependents, $24 for heads of families with one dependent, and $30 for heads of families with two or more dependents. This plan will replace smaller plans for hospital care, notably the Blue Cross.

A greater demand for hospital accommodation and a shortage of beds may result. No doubt this will be relieved considerably by the proposed ten million dollar, 825-bed extension to the Vancouver General Hospital, which will provide added clinical facilities for the projected new medical school of the University of British Columbia.

Alberta

DR. T. R. MCLEAN, formerly superintendent of the Ponoka Mental Hospital, has succeeded Dr. T. Mitchie as Director of Mental and Social Hygiene for the province.

Saskatchewan

SEVERAL CHANGES have been made in the Health Services Planning Commission. Dr. G. E. Wride, director of hospital planning and administration, has succeeded Dr. L. S. Rosenfeld as vice-chairman. Dr. Rosenfeld, who during the past two years has made an important contribution to the organization of health services in Saskatchewan, has resumed his duties with the U.S. Public Health Service in Washington. Dr. H. S. Doyle, provincial director of communicable disease control and acting director of regional health services, has been made a member of the Commission, and Mr. M. G. Taylor, director of research and statistics for the Commission, is the new secretary. The other members of the Commission now are Dr. F. D. Mott, chairman; Dr. C. F. W. Hames, deputy minister of public health; and Mr. T. McLeod of the provincial economic advisory and planning board.

DR. ARTHUR WILSON, for over forty years medical officer of health for the City of Saskatoon, and one of Canada's pioneer public health workers, has been succeeded by Dr. M. Dantow, formerly medical officer, Health Region No. 13 at North Battleford. At the annual meeting of the Canadian Public Health Association in Vancouver last May, honorary life membership in the Association was conferred on Dr. Wilson in recognition of his contribution to the advancement of public health.

DR. MURRAY ACKER has succeeded Dr. B. Bucove as medical officer of health for Health Region No. 3 at Weyburn. Dr. Bucove has entered general practice.

DR. L. M. DAVEY, formerly medical officer for Health Region No. 1 at Swift current, has entered the Lamont Clinic at Lamont, Alta. Dr. Vincent Matthews from the provincial Department of Health in Regina has taken over his duties.

Manitoba

DR. C. R. DONOVAN has been appointed acting deputy minister of health, succeeding Dr. F. W. Jackson, who is on loan to the Department of National Health and Welfare as director of health insurance studies.

DR. E. J. RUTLEDGE has resigned his seat in the Legislature to accept an appointment with the provincial Department of Health and Public Welfare as director of a suburban health unit in Winnipeg.

Ontario

THE ONTARIO PUBLIC HEALTH ASSOCIATION, formed last April, will hold its first annual meeting in the Royal York Hotel, Toronto, on April 25 and 26, 1949. The officers are: Dr. Gordon P. Jackson, president; Dr. R. A. Kelly, Peterborough, first vice-president; Dr. E. Ross Harris, Kirkland Lake, second vice-president; and Dr. L. A. Pequegnat, Toronto, secretary-treasurer.

DR. WILLIAM J. COOK, who served Sudbury for thirty-three years as medical officer of health, died at his summer home at Lake Penaga in July. He had been succeeded in 1940 by his son, Dr. J. Bernard Cook.

ODIN W. ANDERSON, M.A., has resigned as instructor in public health economics at the School of Public Health, University of Michigan, to accept an appointment at the University of Western Ontario.

Postgraduate Students in Public Health

THE FOLLOWING STUDENTS are enrolled at the School of Hygiene, University of Toronto, for the 1948-49 academic session:

Diploma in Public Health: R. M. Aldis, M.D., Milverton, Ont.; J. R. Allanach, M.D., Moncton, N.B.; R. D. Barron, M.D., Toronto, Ont.; D. O. Chan, M.D., Shanghai, China; M. W. Chepesiuk, M.D., Toronto, Ont.; O. T. Cheung, M.B., Hong Kong, China; T. H. Chiang, M.D., Shanghai, China; R. G. Christie, M.D., Vancouver, B.C.; J.-J. Fang, M.D., Wuyan, China; N. S. Gordon, M.D., Toronto, Ont.; D. L. Henderson, M.B., Holden, Alta.; E. S. May, M.D., Vancouver, B.C.; G. W. O. Moss, M.D., Toronto, Ont.; E. S. Peters, M.D., St. John's, Newfoundland; P. K. Ratnasingham, L.M.S., Ceylon; C. E. A. Robinson, M.D., Toronto, Ont.; K. W. C. Sinclair-Loutit, M.A., M.R.C.S. (Eng.), L.R.C.P. (Lond.), London, England; D. C. Smith, M.D., Chatham, Ont.; R. S. Stubbings, M.D., Toronto, Ont.; D. W. A. Templeton, M.D., Virginiatown, Ont.; J. F. S. Walmsley, M.D., Hamilton, Ont.; J. P. Wells, M.D., Toronto, Ont.

Diploma in Dental Public Health: R. A. Connor, D.D.S., Guelph, Ont.; R. S. Langstroth, D.D.S., St. John, N.B.; H. E. McKenna, D.D.S., Sherbrooke, P.Q.; B. J. O'Meara, D.D.S., Wolverhampton, England.

Diploma in Hospital Administration: R. B. Ferguson, B.A., Toronto, Ont.; G. W. Graham, M.D., Montreal, P.Q.; A. H. Hewig, A.B., Battle Creek, Mich.; J. C. Johnston, M.D., Hamilton, Ont.; J. H. Martin, B.A., Toronto, Ont.; D. M. MacIntyre, B.A., Winnipeg, Man.; A. K. McTaggart, B.A., Kitchener, Ont.; F. B. Roth, M.D., Whitehorse, Yukon; R. A. Slute, B.A., Toronto, Ont.; I. Sutton, M.D., Toronto, Ont.; E. V. Wahn, B.A., Regina, Sask.

Diploma in Veterinary Public Health: D. A. Barnum, D.V.M., Guelph, Ont.; D. F. Damude, D.V.M., St. Thomas, Ont.; C. K. Mader, D.V.M., Kitchener, Ont.; N. Micev, D.V.M., Skoplje, Yugoslavia; J. D. Moynan, D.V.M., Ottawa, Ont.; H. Worton, D.V.M., Peterborough, Ont.

Certificate in Public Health: J. H. Doughty, B. Comm., Victoria, B.C.; D. S. Johnson, B.A., Winnipeg, Man.; Y. C. Ma., B.S., Peiping, China; D. L. Noble, B.Sc.(H.Ec.), Victoria, B.C.; R. B. Travis, B.A., Victoria, B.C.

Master of Applied Science: S. Chatterjee, C.E., Bengal, India; D. G. Hoskin, B.E., Saskatoon, Sask.; K. H. Sharpe, B.A.Sc., Toronto, Ont.; W. M. Walkinshaw, B.A.Sc., Toronto, Ont.; T. Won, B.Sc., Timmins, Ont.

In addition, twenty postgraduate students are engaged in M.A. and Ph.D. studies.

Public Health as a Medical Specialty

THE FIRST MEETING of the American Board of Preventive Medicine and Public Health was held in New York on July 14. Members of this incorporated Board are appointed as follows: by the American Medical Association and American Public Health Association, 3 members each; by the Association of Schools of Public Health, Southern Medical Association, and Canadian Public Health Association, 1 member each.

It is proposed that this Board seek approval by the Advisory Council on Medical Specialties in order that diplomates of the Board, all of whom must be physicians, shall have standing comparable to the sixteen other recognized medical specialties in the United States.

The World Health Organization

CANADA'S DELEGATION to last July's meeting of the World Health Organization in Geneva included Dr. G. D. W. Cameron, deputy minister of national health, Dr. G. F. Amyot, deputy minister of health for British Columbia, and Dr. T. C. Routley, general secretary of the Canadian Medical Association, with Dr. Armand Frappier of the University of Montreal and John G. Halstead of the Department of External Affairs as technical advisers.

The newly-negotiated International List of Diseases and Causes of Death was adopted, and the Assembly instructed that first priority should be given to projects taken over from the Health Section of the old League of Nations, and next to tuberculosis, malaria, venereal diseases, child and maternal health, and nutrition.

It was decided to establish five regional offices, and negotiations are continuing towards the incorporation of the Pan-American Sanitary Bureau into the WHO. The 1949 budget was set at $5,000,000, and Dr. G. B. Chisholm, a former deputy minister of national health for Canada, was elected as director-general for a five-year term.

JOSEPH DONAT CHRETIEN, M.D.

DR. JOSEPH DONAT CHRETIEN, for more than twenty years with the Quarantine Service of the Department of National Health and Welfare, lost his life while engaged in boarding duty at Quebec on September 19th. He was the latest of a considerable number of medical officers who have given their lives in the Quarantine Service.

Dr. Chretien was born in 1895 at St. Romuald, Lévis County, Quebec. He joined the Quarantine Service on September 15, 1927, and continued with that service, although he had many other responsibilities. He graduated from Laval University in 1922 and took postgraduate work in paediatrics, in Paris, during 1923 and 1924, after which he enrolled for a laboratory course in chemical medicine in New York in 1924 and 1925.

In 1929 and 1930, he served with the Overseas immigration medical service. Although Quebec was his home port, he served when needed at Halifax, Saint John, Montreal, and William Head, Victoria. He was for many years chief quarantine medical officer for the St. Lawrence River ports, and also chief medical officer at Quebec for the Department of National Health and Welfare, administering their many activities during the second world war. He held the rank of Lieutenant-Colonel in the Canadian Army Medical Corps.

EMPLOYMENT SERVICE

Advertisements regarding "positions available" and "personnel available" will be published in from one to four consecutive issues, depending upon the requirements of the agency or person concerned. They are limited to seventy words or less, with a confidential box number if desired. There is no charge for this service to members of the Association. Health agencies are charged a flat rate of $10.00 for the advertisements (up to four consecutive issues) and for the service. The rate for non-members is $5.00. The service includes confidential clearing of information between prospective employer and employee if desired.

WANTED: Chief Sanitary Inspector, Yukon Territory — Salary $4,000 per annum. Appointee required make headquarters Whitehorse. Duties include supervision sanitation measures along Yukon Section Alaska Highway and in Whitehorse, Dawson and Mayo. Appointee must supply own car but would receive travelling expenses limited to seven cents per mile in summer, thirteen cents in winter, and such air and boat transportation expenses as duties required. Apply Commissioner, Yukon Territory, Dawson.

Medical Officer of Health required for the City of Westmount, Quebec. Generalized public health program. Letters of application specifying qualifications, experience, and approximate salary expected may be forwarded to: Mr. N. T. Dawe, Personnel Officer, Westmount City Hall, 4333 Sherbrooke St., Westmount 6, Quebec.

Wanted: Resident Physician for Point Edward Tuberculosis Hospital, Cape Breton, Nova Scotia—a 200-bed institution. Application forms may be obtained from the Nova Scotia Civil Service Commission, P.O. Box 943, Halifax, N.S., or telephoning No. 3-7341, Br. 230.

Wanted: Qualified Sanitary Inspector. Must be bilingual. Salary $2,100 to $2,400. Car allowance 8c a mile. Apply: Prescott & Russell Health Unit, 33 Main Street West, Hawkesbury, Ontario.

WANTED: Sanitary Inspector for Northumberland—Durham Health Unit, Ontario. Certificate in Sanitary Inspection (Canada) or equivalent qualification essential. Write Mr. W. E. Barr, Secretary-Treasurer, Northumberland—Durham Health Unit, Cobourg.

See also page 14.